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Dated: November 22, 2011
Electronic Signature for James E. Armstrong, IV: /James E. Armstrong, IV/

Docket No.: 80657(47762)
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Hidetsugu Takagaki et al.

Application No.: 10/565,828 Confirmation No.: 7933

Filed: January 25, 2006 Art Unit: 1612

For: THERAPEUTIC AGENT FOR CHRONIC OBSTRUCTIVE PULMONARY DISEASE AND METHOD FOR TREATING CHRONIC OBSTRUCTIVE PULMONARY DISEASE USING THE SAME

Examiner: C. E. Simmons

PRELIMINARY AMENDMENT UNDER 37 C.F.R. 1.115

MS Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir/Madam:

INTRODUCTORY COMMENTS

In response to the Office Action dated June 25, 2011 and the Advisory Action dated October 21, 2011, regarding finally rejecting claims 15 and 31-35, enclosed herewith a three month Extension of Time and a Request for Continued Examination (RCE), please amend the above-identified U.S. patent application as follows:

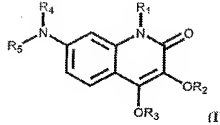
Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks begin on page 5 of this paper.

AMENDMENTS TO THE CLAIMS

Claims 1-14: Cancelled

Claim 15 (Previously Presented): A method for treating chronic obstructive pulmonary disease, which comprises orally or parenterally administering to a warm-blooded animal a therapeutic agent for chronic obstructive pulmonary disease comprising, as an active ingredient, a 7-aminoquinolinone derivative represented by the general formula (I):



(I)

wherein R_1 represents a methyl group; R_2 represents an octyl group; R_3 represents a hydrogen atom; R_4 represents a hydrogen atom; and R_5 represents a 3,5-dimethoxy-4-hydroxycinnamoyl group, and its physiologically acceptable salt.

Claims 16-30: Cancelled

Claim 31 (Previously Presented): The method for treating chronic obstructive pulmonary disease according to Claim 15, wherein the chronic obstructive pulmonary disease is chronic bronchitis.

Claim 32 (Previously Presented): The method for treating chronic obstructive pulmonary disease according to Claim 15, wherein the chronic obstructive pulmonary disease is pulmonary emphysema.

Claim 33 (Previously Presented): The method for treating chronic obstructive pulmonary disease according to Claim 15, wherein said therapeutic agent for chronic obstructive pulmonary disease is orally administered.

Claim 34 (Previously Presented): The method for treating chronic obstructive pulmonary disease according to Claim 15, wherein said therapeutic agent for chronic obstructive pulmonary disease is taken internally.

Claim 35 (Previously Presented): The method for treating chronic obstructive pulmonary disease according to Claim 15, wherein said therapeutic agent for chronic obstructive pulmonary disease is orally administered to treat pulmonary emphysema.

36. (New) The method for treating chronic obstructive pulmonary disease according to claim 15, wherein said therapeutic agent for chronic obstructive pulmonary disease is orally administrated to improve lung resistance.

37. (New) The method for treating chronic obstructive pulmonary disease according to claim 15, wherein said therapeutic agent for chronic obstructive pulmonary disease is orally administrated to improve residual volume.

38. (New) The method for treating chronic obstructive pulmonary disease according to claim 15, wherein said therapeutic agent for chronic obstructive pulmonary disease is parenterally administrated to inhibit infiltration of inflammatory cells into airway.

39. (New) The method for treating chronic obstructive pulmonary disease according to claim 15, wherein said therapeutic agent for chronic obstructive pulmonary disease is intra-tracheally administrated to inhibit infiltration of inflammatory cells into airway.

40. (New) The method for treating chronic obstructive pulmonary disease according to claim 31, wherein said therapeutic agent for chronic obstructive pulmonary disease is orally administrated to improve lung resistance.

41. (New) The method for treating chronic obstructive pulmonary disease according to claim 31, wherein said therapeutic agent for chronic obstructive pulmonary disease is orally administrated to improve residual volume.

42. (New) The method for treating chronic obstructive pulmonary disease according to claim 31, wherein said therapeutic agent for chronic obstructive pulmonary disease is parenterally administrated to inhibit infiltration of inflammatory cells into airway.

43. (New) The method for treating chronic obstructive pulmonary disease according to claim 31, wherein said therapeutic agent for chronic obstructive pulmonary disease is intra-tracheally administrated to inhibit infiltration of inflammatory cells into airway.

44. (New) The method for treating chronic obstructive pulmonary disease according to claim 32, wherein said therapeutic agent for chronic obstructive pulmonary disease is orally administrated to improve lung resistance.

45. (New) The method for treating chronic obstructive pulmonary disease according to claim 32, wherein said therapeutic agent for chronic obstructive pulmonary disease is orally administrated to improve residual volume.

46. (New) The method for treating chronic obstructive pulmonary disease according to claim 32, wherein said therapeutic agent for chronic obstructive pulmonary disease is parenterally administrated to inhibit infiltration of inflammatory cells into airway.

47. (New) The method for treating chronic obstructive pulmonary disease according to claim 32, wherein said therapeutic agent for chronic obstructive pulmonary disease is intra-tracheally administrated to inhibit infiltration of inflammatory cells into airway.

REMARKS

Claims 5, 31-35 and new claims 36-47 are pending. The support for the new claims in the originally filed specification is at least as follows: Claims 36, 40, 44: p.33, lines 1-7, p.41, lines 8-11; Claims 37, 41, 45: p.33, lines 1-7, p.39-40; Claims 38, 42, 46: p.33, lines 1-7, p.32, lines 1-25; and Claims 39, 43, 47: p.39, lines 1-3, p.32, lines 1-25. No new matter is added.

New claims 36-47 are presented to ensure that the claimed subject matter is commensurate in scope with applicant's previously presented grounds for unobviousness. Herein oral, parenteral and intra-tracheal administration is now claimed, making the Examiner's previous concerns in the October 21, 2011 Advisory Action about the data in the July 16, 2008 Declaration being commensurate in scope with the claims now moot.

Claims 15 and 31-35 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura et al. in view of Postma et al. (both cited by Examiner on 1/31/2008). (Office Action dated May 25, 2011, page 2)

It is now recited, for example, in claim 36 and similarly in claims 40 and 44:

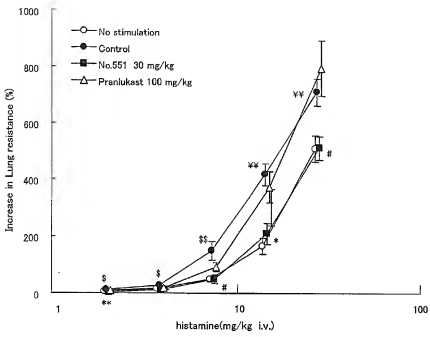
36. (New) The method for treating chronic obstructive pulmonary disease according to claim 15, wherein said therapeutic agent for chronic obstructive pulmonary disease is orally administrated to improve lung resistance.

This is commensurate in scope with the results of Experiment 1 in the July 16, 2008 Declaration as shown herein:

Experiment 1

A commercially-available antiasthmatic drug "pranlukast" was studied on an airway hyper-responsiveness model induced by exposure of peroxynitrite in guinea pigs. 100 mg of the test drug was orally administered to a guinea pig in the same manner as Example 2 in the present specification to evaluate the effects of the drug on airway hyper-responsiveness in terms of lung resistance. The results are shown in FIG. 1 below. For comparison, compound No. 551, a "no stimulation group" and a control group are also shown in FIG. 1.

FIG. 1



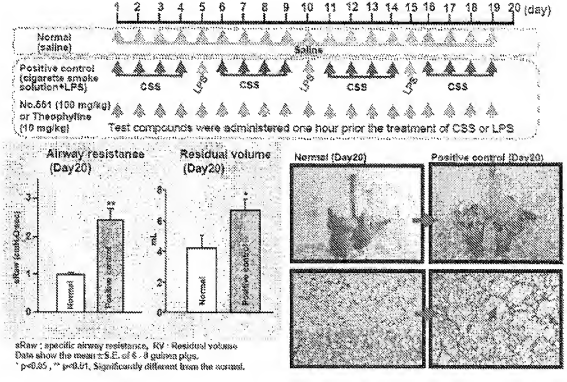
Effects of Compound No. 551 of the present invention and Pranlukasut on the increases in lung resistance induced by peroxynitrite
N=12
$$: P<0.01 (No stimulation vs Control; Aspin-welchi t-test)
¥¥:P<0.01 (No stimulation vs Control; Student t-test)
#:P<0.05, ##:P<0.01 (Control vs No.551; Steel multiple test)
**:P<0.01 (Contro vs No.551; Dunnett's multiple test)

The data from Experiment 1 proves the effect of the claimed invention:

To evaluate the effect of compound 551 (100 mg•kg-1) and theophylline (10 mg•kg-1) were orally administered once a day 1 hour before the respective intratracheal instillations of CSS or LPS on days 0-18 (Theophylline group).

The results are shown in FIG. 3.

FIG. 2

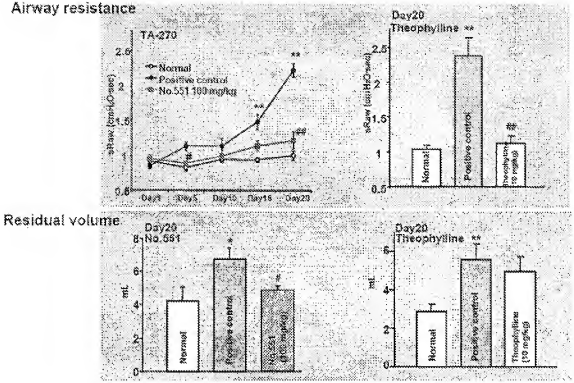


It is now recited, for example, in claim 37 and similarly in claims 41 and 45:

37. (New) The method for treating chronic obstructive pulmonary disease according to claim 15, wherein said therapeutic agent for chronic obstructive pulmonary disease is orally administrated to improve residual volume.

This is shown in FIG. 3 of the July 16, 2008 Declaration as follows:

FIG. 3



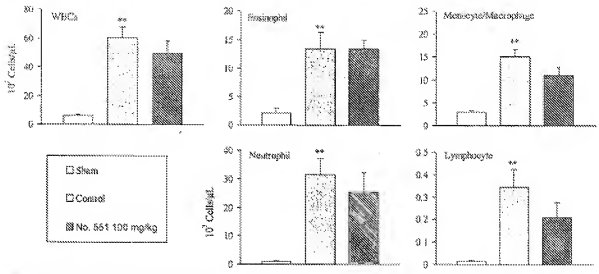
Data show the mean ± S.E. of 6 - 8 guinea pigs.
*** p<0.05 , ** p<0.01, Significantly different from the normal.**
 # p<0.05, ## p<0.01; Significantly different from the positive control.

Furthermore, Experiment 3 of the July 16, 2008 Declaration explains the method for counting inflammatory cells as now recited in claims 38, 39, 42, 43, 46 and 47. For example, as now claimed:

38. (New) The method for treating chronic obstructive pulmonary disease according to claim 15, wherein said therapeutic agent for chronic obstructive pulmonary disease is parenterally administrated to inhibit infiltration of inflammatory cells into airway.

The results of which are shown in FIG. 4 of the July 16, 2008 Declaration for example:

FIG. 4



Effect of compound No. 551 on filtration of inflammatory cells into the bronchoalveolar cavity in emphysema model of guinea pig.
Each value represents the mean with standard error.
* $p<0.05$, ** $p<0.01$; Significantly different from the sham group.

The obvious choice of intra-tracheal administration of theophylline and TA-270 is to avoid the central nervous stimulating effect and a myocardial stimulating effect of theophylline.

The purpose of the Declaration dated September 14, 2010 was to demonstrate further unexpected results of TA-270 on cells in the airway of COPD mice induced by LPS with the original experiments performed in the Declaration dated July 16, 2008. Therefore it is believed that all the empirical data noted by the Examiner in the Office Action has been submitted and is persuasive evidence of unexpected results. Furthermore the data is commensurate in scope with the claims as now recited.

In view of the above remarks, applicant believes the pending application is in condition for allowance.

The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 04-1105.

Dated: November 22, 2011

Respectfully submitted,

Customer No. 21874

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